HEMS Integrated Curriculum:

In the freshman year, the required courses are Biology 1 (Honors) and Agriscience Foundations 1. In the sophomore year, the required courses are Environmental Science and Introductory Horticulture 2. In the junior year, Horticultural Science 3 is to be linked with Chemistry 1 Honors and Marine Science 1. [This year is a change for chemistry. In the past, it was offered to HEMS students as sophomores. Next year, there will be integrated units as once again HEMS students, then juniors, are taking chemistry.] As seniors, the HEMS students do their internship. (Marine Science 2, intended to be the senior-level class, was cancelled this year. Due to the class-size amendment and other financial restrictions, the class was not going to be large enough to “make.”)

A side-by-side comparision of the major units of each course show the many opportunities for making connections for the students.

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| **Biology 1 Honors**  Interdependence of Life  Evolution of Life  Biodiversity of Life  Energy and Matter of Life  Genetics and Reproduction of Life  Understanding Structure and Function of Life  (Nature of Science topics are embedded throughout the course.) | **Agriscience Foundations 1**  History and impact of agriculture  Career opportunities  Science and research concepts  Biological and physical science principles  Environmental principles  Agriscience safety  Leadership  Agribusiness, employability, and human relations skills |
| **Environmental Science**  Interdependence – cycles and patterns  Biomes and ecosystems  Population and waste management  Energy resources  (Nature of Science topics are embedded throughout the course.) | **Introductory Horticulture 2**  Career opportunities  Global importance of agriculture  Plant classification  Propagation  Growing media  Nutritional needs  Fertilization  Irrigation  Pest identification  Pest control  Pruning  Plant installation  Transplanting  Safe hand-tool use  Employability skills |
| **Chemistry 1 Honors**  Metric measurement  Physical and chemical properties  Structure of matter  Chemical calculations  Equilibrium  Rates of Reactions  Solutions  Acids and Bases  Behavior of Gases  Nuclear chemistry  (Nature of Science topics are embedded throughout the course.)  **Marine Science 1**  Chemical and physical properties of water in the marine environment  Oceanic geology  Marine environments  Life in the marine environment  (Nature of Science topics are embedded throughout the course.) | **Horticultural Science 3**  Industry regulations  Plant classification  Plant transportation  Soil sampling and analysis  Fertilization calculations  Irrigation components  Water quality  Drainage  Integrated pest management  Pesticide safety and regulations  Equipment calibration  Chemical growth regulators  Xeriscaping  Integrated landscape management  Safe use of power equipment  Record keeping  Employability skills |